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ABSTRACT

The original Higher Horizons Program or HH 100, was established in 1965 as a ninth grade compensatory model which could be used to demonstrate that some of the more salient ravages of educational deprivation could be corrected effectively, and at the high school level. So as to demonstrate that secondary school compensatory education could continue to be effective, HH 100 became an ever-evolving program. This evolution occurred in terms of the articulation of language remediation, guidance services, and cultural exploration oriented around the several focal areas: (1) HH 100 was to provide an atmosphere in which experimentation, change, and program development could be accomplished in response to the particular learning problems of about 100 selected disadvantaged students; (2) Students were to be helped to adjust not only to a regular school program but also to future program changes as these were to occur; (3) Remediation for specific learning deficiencies was to be provided, particularly in the basic skill areas of reading and language; (4) Available funds, although limited, were to be used to expand the experiential backgrounds of the students; and, (5) The program was necessarily aimed toward an improvement of student self-concept. Here the goal was to facilitate the development of higher educational, vocational, and life style goals. (Author/JM)

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HIGHER HORIZONS

An Evaluation of an Expanded Team Program

Evaluation Office
Hartford, Connecticut
July 1972

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EDUCATION & WELFARE
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HIGHER HORIZONS
1970-1971

BACKGROUND

The original Higher Horizons program or HH 100 as it was commonly called, was established in 1965 as a ninth grade compensatory model which could be used to demonstrate that some of the more saliant ravages of educational deprivation could be corrected effectively, and at the high school level. Despite a national emphasis on early childhood compensatory efforts, HH 100 was able to point out continually , and over a full seven years of operations, that in the Hartford Public Schools there should be no grade level where adequate programing can no longer help a youngster, particularly in terms of skill remediation.

HH 100 has always been orientated toward reading and communications skill remediation. These corrective services have, in turn, been supplemented by similar concentrations of effort upon other equally crucial skill areas. Since HH 100 was also concerned about the student as a person, the development of a better self-concept and wider exposures to the cultural and educational opportunities within the Hartford and New England areas have always been crucial to the program.

STATEMENT OF NEED

So as to demonstrate that secondary school compensatory education could continue to be effective, HH 100 became an ever evolving program. This evolution occurred in terms of the articulation of language remediation, guidance services, and cultural exploration orientated around the several

focal areas:

1. HH 100 was to provide an atmosphere in which experimentation, change, and program development could be accomplished, and in response to the particular learning problems of about one hundred selected disadvantaged students; hence, the name, "Higher Horizons 100."
2. Students were to be helped to adjust not only to a regular school program but also to future program changes as these were to occur.
3. Remediation for specific learning deficiencies was to be provided and particularly in the basic skill areas of reading and language arts.
4. Although cultural funds continued to be limited, available resources were to be used to expand the experiential backgrounds of the students, thus bringing them above the out of school levels which were usually attainable.
5. The program was necessarily aimed toward an improvement of student self-concept. Here, the goal was to facilitate the development of higher educational, vocational, and life style goals.

Before discussing the actual operations of the HH 100 program, several comments are in order. Since its inception at the Hartford Public High School, HH 100 has gone through a number of programatic and philosophical modifications; that these have evolved from the continued team assessment of student needs is not only a credit to the program but represents a salient reason why HH 100 has always been so successful. At the same time, and while the same philosophy of self determination was applied to HH 100's

expansion in 1970-71 to three other sites, a number of proceedual problems have been created.

At HPHS, program modifications grew out of evolving student needs and existent team strengths. Because the other sites were new ones, often this expertise was not available, and because each team functioned as a seperate entity with but a modicum of centralized control, it was understandable that team operations would differ. Tied together only by a set of objectives and guidelines which had been developed for funding, and by the funding mandate that all teams would be evaluated in terms of academic test changes, team programs differed markedly. While some informal coordination did take place between the teams, this was largely the result of personal relationships; these had been established for various reasons between team leaders and the "mother" team at HPHS. Since contacts were generally related to a coordination of the testing program other areas of interest were not normally covered. Note here that the affinity between all high schools was a logical one; HPHS and the Annex were really one institution while the Weaver team leader was a former team member at HPHS. Note also that the affinity did not logically extend to cover the middle school programs since here the overall operation plans were obviously different.

Because of an absence of specific program directions, there were indications that to some extent project guidelines were sometimes altered. Where alterations have been reported, these are noted in the narration which follows.

Objectives

As has been noted, a series of specific project objectives had been submitted for funding. These, and additional team objectives can be reported as follows:

1. Objective. After having spent one year in HH 100 with its special emphasis on the mastery of language skills, the learner will achieve a statistically significant gain in reading achievement at the .05 level.

   Criterion. Gains will be measured by a group comparison of the Metropolitan Achievement Reading Test subscores, administered in September and May of the school year. In addition, H.P.H.S. Annex and H.P.H.S. will also utilize the Iowa Silent Reading Test. W.H.S. will administer the California Reading Test according to the cited schedule.

2. Objective. After having completed one year of Higher Horizons 100 math instruction, the learner will achieve a statistically significant .05 level mean gain in one or more of the following areas.

   Criterion.

   a. All teams will administer the Metropolitan Achievement Test Computation and Problem Solving subtests in September and May of the school year.

   b. H.P.H.S. will administer the California Aptitude Test during the same time periods.

   c. W.H.S. will administer the Iowa Algebra Aptitude Test to students enrolled in Algebra I.

3. Objective. After having spent one year in HH 100 with its special emphasis on the mastery of language skills that learners will achieve a statistically significant gain in writing skill ability measured at the .05 level.

   Criterion. This objective will be measured by the group comparison of SRA Writing Skill Test scores administered in September and May of the school year.

4. Objective. After having spent one year in HH 100 with concen= trated emphasis on personal adjustment and academic improvement the learner should achieve a more realistic self image toward school and society.

   Criterion. A pupil self-rating scale will be constructed by the evaluation office and will be administered to students at the end of the school year. In addition, and if time permits, the scale will also be administered to an appropriate control population, and to a sample of HH 100 graduates at the succeeding grade level to ascertain if behavioral gains are being carried into successive years of high school.

5. Objective. Giving experience of varied activities and learning situations the learner should achieve a better attendance record.

   Criterion. A percent of attendance will be calculated and will be used to compare HH 100 attendance figures with:

   a. Previous grade cumulative attendance record for the group.

   b. Overall grade attendance figures at the hose school at the end of the school year.

A minimum 10% increase is expected.

6. Objective- W.H.S. After having spent one year in Higher Horizons Introductory Physical Science, the learners will show a statistically significant gain in their ability to use scientific inquiry methods, problem solving techniques and concepts relative to physical science.

   Criterion. Gains will be measured by the Introductory Physical Science Achievement Test, form C, administered in September and May of the school year.

Modifications to the objectives included the following:

1. At H.P.H.S. Annex, over five pages of more specific objectives were submitted although criterion continued to be group measures. It should be noted that while these group measures were appropriate to an assessment of the program objectives, the measurement of more specific or individualized objectives requires that either a different kind (criterion-referenced, for example) of test be utilized, or that the group achievement test data be broken down and reported on an item basis, with items keyed to specific objectives. Since neither of these kinds of evidences were submitted it was not possible to determine whether these objectives had been accomplished.
2. No other objective modifications were reported.

STUDENT SELECTION CRITERIA

Students were selected for participation in the HH 100 program on the basis of their attendance at one of the following validated school areas, and at the indicated grade levels: Grade 9 at Weaver, HPHS, and the Annex and grades 7-8 at the Fox Middle School. In addition all students were screened for selection on the basis of several other factors:

1. Students were generally of an "average" tested ability or were rated by their teachers as having the potential to perform at an "average" or better level of achievement. The use of the team "average" frequently included attention to a verbal or non-verbal Lorge-Thorndike test score which was generally in the range of from 90-110. Because of possible selection bias, this criterion is being removed from future consideration.
2. The recorded reading level for each nominee was to have been one to three years below the appropriate grade placement at all sites except the Annex; here it was four years below level. At Weaver High School, this criterion had been expanded in 1970-71 so as to include youngsters who fell five years below grade level; during 1971-72, it was restored to the three year mark.
3. Students were selected on the basis of emotional stability. In establishing this criteria, it was stressed that participants should not have been considered serious disciplinary problems.
4. Regular attendance was a prerequisite. No "cut off" point was specified except at Weaver; here twenty days of absence eliminated candidates from consideration.

5. Student age had been kept relatively homogeneous in the past. This year, the only references to this criterion were reported by Fox and by H.P.H.S.. At H.P.H.S., youngsters were excluded if they were over two years older than the usual placement level. At Fox, the upper age limit for seventh graders was 13.5. A limit for the eight grade students was not reported.
6. All students were screened and approved by their feeder school counselor. Here a wide degree of latitude was permitted in deviating from the stated criteria.
7. Flexibility in the selection criteria was stressed in the hopes that all eligible candidates would be considered. Thus, counselors could make additional recommendations where special cases were indicated. All recommendations were, however, discussed with the appropriate HH 100 counselor and the team leader prior to the student's final notification of acceptance.
8. Parental permission was required for participation in all HH 100 program. This approval tended to facilitate the kinds of home and school cooperation which had proven to be so supportive in the past.

DESCRIPTION

The actual operation of all five HH 100 teams continued to incorporate an articulated approach to compensatory education for each of the five groups of approximately one hundred urban youngsters. Using instructional teams which were made up of teachers and other specialists, each program

was set up as to motivate and encourage each youngster to react positively to a somewhat individualized and student-centered program. Each program placed a high degree of reliance on proven inner-city methodologies and included in its repertoire of activities:

1. Small group instruction. Since each team operated in a "mini-house" or cluster setting, the students were provided with an environment which was intended to enable students to relate intimately to each other and to the instructional team members. Because this relationship was reciprocal, students were able to obtain assistance in the solution of specific learning and behavorial problems. While some outside support was provided, in general the program was carried on largely by only the team teachers.
2. Intensive counseling. A school counselor, who was to be assigned to each team on a full-time basis, was also responsible for the project's testing. Note here that at Weaver and at Fox, guidelines were not followed in that the Weaver counselor was also given the responsibility to work with last years' HH 100 group, and the Fox counselors each with a similar number. For each of these teams, the case load was about 180 youngsters.
3. Cooperative planning and dialogue. Through a continuing series of both formal and informal gatherings staff members were encouraged and helped-to react, respond, and adjust to the needs of their pupils. Here, again the majority of the "help" came internally from the teachers and team members.
4. Cultural activities. In contrast to many programs, cultural trips

and experiences were pre-planned by students and teams, and these were evaluated as part of the total instructional program.

The actual composition of HH teams has varied over the course of the program's seven year history. They also varied from center to center. During the 1971-72 school year, each team was made up of the following:

1. H.P.H.S.: The team was composed of an English teacher, a reading and a speech specialist, science, math and regional studies teachers, a project assistant, and a school counselor, the latter also served as team leader.
2. H.P H.S. Annex: Here the team was made up of a teacher of English, regional studies, general science and mathematics. a project assistant and a guidance counselor - team leader. While there was a position for a reading teacher contemplated, this Annex position was not filled during the school year.
3. Weaver High School: This team consisted of an English teacher, a social studies teacher, a reading teacher, a science teacher, a mathematics teacher, a guidance counselor, and a project assistant. At Weaver, the team leader was the English teacher.
4. Fox Middle School: Both teams were made up of a counselor, reading teacher, and teachers of the four academic areas. Counselors also served youngsters outside the HH 100 clusters at a ratio of about 180 to 1.

Because the teams and the instructional climate varied from school to school, it was obvious that the conduct of instruction would also differ

1. At Weaver:

a. Classes returned to their normal five period schedule this

year. During the sixth period, electives were offered outside the program in art, music, business, language, gym, and typing. Of the 89 HH 100 students, 50 selected an elective while the remaining students chose to remain in study halls which were supervised by parents and teachers. All but six of these youngsters passed the course successfully. Note here that the business course had been preplanned last year; this, but not the scheduling of industrial arts could be reported.

b. Weaver also reported specific course focuses:

1) English - writing and reading improvement in literature.

2) Reading - problems in reading as these related to other courses offered by the program.

3) Regional Studies - a study of tradition and change in two western and nonwestern societies. This course was significantly different in its approach and materials from other equivalent social study offerings.

4) Introductory Physical Science - concepts, operations, measurements, vocabulary, processes, and skills.

5) Math - individualized general math, intruduction to algebra, and Algebra I.

6) In addition to the regular and elective course work, fully twenty-two enrichment projects were reported.

2. At H.P.H.S , and in keeping with the team's developmental philosophy, the following program modifications were reported:

a. In a continuing effort to increase program offerings, typing was expanded to include 30 students and to grant 1/4 credit

for completion. In addition, 15 typewriters were purchased by the team for permanent use in the language arts area.

b. Art was added one day a week on a noncredit basis for those who were interested in this area. Plans have also been made to offer it once again in the coming fall.

c. In keeping with the Higher Horizons philosophy of developing a feeling of camaraderie, a photography club was started within the program.

d. Eight Trinity College students were specifically recruited to tutor Higher Horizons students on a one-to-one basis.

e. Team teaching units on communications and drugs, highlighted by the use of the video tape recorder, were utilized. These were reported as being very helpful by both the teachers and the students who participated.

f. Another modification which appeared to be highly successful was the expansion of the project assistant position from what was a secretarial role to one which was more inclusive in nature This new role included supportive counseling and tutoring as well as career visitations. Because of her nonthreatening position as a team "neutral," many students found it comforting to stop by the project assistant's office for indirect counseling. This was not inappropriate to her preparation in that she had already completed 18 hours towards a master's degree in guidance.

g. In the area of career orientation, trips to the University of Connecticut, Central Connecticut State College, Hartford

Hospital, Connecticut General Life Insurance Company, and the Connecticut Bank & Trust Company proved enlightening for the students as evidenced both by their written and oral comments. In addition, clusters of students were taken to areas of specific interest. Mr. Henderson Duval, Assistant Director of Personnel for the Hartford Board of Education, was brought in for a unit on "How to Apply for a Job," and students actually filled out a job application.

h. Reported cultural enrichment trips included the Museum of Natural History, the Statue of Liberty, the Hartford Stage Company, Channels 18 and 24, the Forest Park Zoo, the State Capitol, the Supreme Court, and the State Library. Notable speakers included Mayor George Athanson, Dr. Hilda Standish, and Attorney Hilda Diaz.

3. Many people tend to forget that the H.P.H.S. Annex, despite its location apart from the Forest Street building, is an integral and vital part of H.P.H.S. Consequently, it could be expected that the Annex program would closely parallel that of its sister building. In consequence, reported program differences were minimal; these included:

a. The delineation of more specific behavorial objectives for each of the classroom subjects. Unfortunately, specific standards and measurement criteria were in many instances not reported.

b. A program of intensive career exploration was preplanned and conducted with the cooperation of Greater Hartford business

and industries, and institutions of higher education. This program allowed small groups to participate in on-site investigations in depth with a minimum of three days devoted to each program

c. An opportunity was provided for each student to select an added subject from the regular school program to better develop individual interests.

d. An attempt was made to place HH 100 students in a special Higher Horizons-supervised study period so that supportive HH 100 teacher assistance could be made more readily available. Again, the replication of the original H.P.H.S. procedure should be noted.

4. With the opening of the Fox Middle School last year, two additional teams were established; one was funded under Title I while the other received local support. Although the level of the students, the cluster setting at Fox, and the requirements of middle school programs virtually dictate some deviation from the high school norm in terms of team operations, details as to specific changes or modifications were not reported.

PROBLEMS AND SUCCESSES

Before examining the HH 100 evaluation proper and its focus upon the series of specified behavorial objectives, some caveats are in order. First of all, one might want to examine evidences of program success which evolved somewhat apart from the stated project objectives. Secondly, one might also want to consider reported problem areas as they could have related to the overall conduct of the program. Note here that the reported

items which follow were submitted by the team and were generally not amenable either to measurement nor to other forms of documentation.

1. Problem Areas:

   a. H.P.H.S. reported that a lack of funding for summer team planning would affect the program during the coming year. The effects of this cutback are expected to be seen early in the fall of 1972.

   b. At the Annex no problem areas were reported.

   c. Weaver reported problems associated with the training of staff who were new to the program; at the beginning of the year, all had less than five months of HH 100 service. Similarly, it was reported that adequate guidance services were lacking for youngsters. Happily, the team leader was also able to report that both these conditions have since been remedied.

   d. At Fox Middle School, several problem areas were reported. Note here that these problems are typical of those which were reported by the various teams during their first year of operations:

      1) Incorrect placement from feeder schools.

      2) Misunderstanding of selection criteria.

      3) Inadequate science stations.

      4) Lockers located outside the cluster area

      5) Inadequate locks.

      6) Poor distribution of materials in some subject areas.

      7) Transferring of students to the Higher Horizons team because of social and emotional problems.

2. Evidences of Successes:

a. At H.P.H.S., the highlight of the year came in February 1972, when the Higher Horizons program was selected as a model program by U.S.O.E.'s Right to Read Office. With the ensuing publicity came a rash of visitors from all over the country to observe the program. Requests were also received by members of the team to speak at various universities.

b. The Annex reported that the success of their program could be attributed largely to staff efforts. Here members worked as a true team with pupil-centered activities paramount. Also reported were lowered numbers of pupil suspensions, and a decrease in the numbers of MDO's (disciplinary referrals) which were recorded.

c. Weaver reported that community involvement was a program highlight. The 26 parents who were reported as being involved in the program were particularly interesting since their "involvement" included not simply visits but the supervision of study halls, class observations, and conferences about various aspects of the program.

d. The Fox-I team reported that their major accomplishment was made in the area of reading. According to preliminary Iowa Silent Reading Test analysis, here the cluster made an average gain of 1.2 years over an 8-month period of reading instruction.

e. At Fox II, no other evidences were reported.

EVALUATION

At the beginning of the 1970-71 school year, the HH 100 concept had been expanded from its original team setting at H.P.H.S. so as to assist and serve similar groups of students at the H.P.H.S. Annex, Weaver High School, and Barnard-Brown, an expansion which was based primarily upon the analysis of longitudinal test data. In similar fashion, data collected over the 1970-71 school year also served as the basis for adding two teams at Fox, and for continuing the Barnard-Brown team at Quirk when that school opens in the fall. Typical of these findings were the following:

1. At H.P.H.S., W.H.S. and the H.P.H.S. Annex, MAT Word Knowledge mean gain scores were significant.
2. Reading scores showed mixed changes. At H.P.H.S., the gain level was highly significant; at the Annex there were slight, but nonsignificant gains; and at Weaver High School, Reading scores dropped approximately four months over the course of the instructional period.
3. While only Weaver High School and the Annex were tested on the MAT mathematical sub scores, again change patterns differed. At the Annex, both Arithmetic Computation and Problem Solving gains were highly significant. At Weaver, there was a slight, but nonsignificant gain in Arithmetic Computation and a drop of approximately seven months in Problem Solving.
4. In terms of writing skill mastery, and when mean percentiles were compared, each of the three high school centers showed differing amounts of gain. Gains at H.P.H.S. and W.H.S. were highly

significant, while those at the Annex were relatively minor.

5. On the MAT Word Knowledge subtest which was given to the Barnard-Brown students, fully 79% of the youngsters showed improvements averaging from 6 to 8 months of gain.

6. Similarly, 90% of the Barnard-Brown youngsters showed increases in Reading, 80% in Arithmetic Computation, and 81% in Arithmetic Problem Solving. In Reading, the average gain per student was 7 months; in Arithmetic Computation, 5 months; and in Problem Solving, 6 months.

7 When the Higher Horizon youngsters were compared with all other Barnard-Brown students at the same grade levels, the HH program produced greater gains in Arithmetic Computation and in Problem Solving. Conversely, in the areas of Word Knowledge and total Reading, the gains tended to favor the control youngsters although here there was no clear indication that either the experimental or the control group was superior.

8. At Barnard-Brown, Higher Horizons, 41 students lessened attendance patterns over those reported for the previous year, while 49 youngsters showed gained in terms of attendance.

Based upon the gain patterns which were reported for the 1970-71 school year, Higher Horizons was evaluated as a total program, and on a team by team basis once again. To do this, a series of behavorial objectives together with specified measurement criteria which could be used as program benchmarks were developed. While these had originally grown out of the HPHS

team operations , newer teams logically adopted these statements under the probable assumption that all HH 100 operations would generally be comparable. Thus the utilized objectives, measurement criteria, and standards of attainment, together with an interpretation of these findings in terms of program operations follows:

1. Objective. After having spent one year in HH 100 with its special emphasis on the mastery of language skills, the learner will achieve a statistically significant gain in reading achievement at the .05 level.

   Criteria. Gains will be measured by a group comparison of the Metropolitan Achievement Reading Test subscores, administered in September and May of the school year. In addition, HPHS Annex and HPHS will also utilize the Iowa Silent Reading Test. W.H.S. will administer the California Reading Test according to the cited schedule.

   Findings.

   a. Table 1 presents comparisons of mean Metropolitan Achievement Test scores which were collected at the beginning and end of the 1971-72 school period. Note here that a reported significance level of .05 meets the evaluative criteria; a level of .01 substantially exceed it. Thus, only the H.P.H.S. Annex Word Knowledge gain failed to meet criteria specified for the evaluation.

TABLE 1

COMPARISON OF METROPOLITAN ACHIEVEMENT MEAN READING GRADE EQUIVALENTS, SPRING, 1971-1972

Team & Subtest	N	Fall Mean G.E.	Fall S.D.	Spring Mean G.E.	Spring S.D.	Dif.	Signif.
Fox 1							
Word Knowledge	87	4.9	1.16	5.4	1.31	.5	.01
Reading	87	4.5	1.03	4.8	1.26	.3	.05
Fox 2							
Word Knowledge	83	5.1	1.38	5.6	1.58	.5	.01
Reading	83	5.0	1.48	5.3	1.88	.3	.01
H.P.H.S.							
Word Knowledge	72	6.4	1.74	7.1	1.72	.7	.01
Reading	75	6.2	1.71	6.8	1.85	.6	.01
H.P.H.S. Annex							
Word Knowledge	81	6.4	1.78	6.5	1.74	.1	
Reading	81	5.3	1.74	6.5	1.82	1.2	.01
W.H.S.							
Word Knowledge	79	3.4	.71	7.8	1.40	4.4	.01
Reading	79	3.1	.38	6.8	1.36	3.7	.01

b. To further validate Objective 1 with additional information and to provide added diagnostic information to the team, the Iowa Silent Reading Test was also administered at HPHS and at the Annex. Comparisons of mean achievement scores on this instrument are reported in Table 2.

TABLE 2

COMPARISON OF IOWA READING MEAN GRADE EQUIVALENTS, 1971-1972

Team	N	Fall		Spring		Dif.	Signif.
		Mean G.E.	S.D.	Mean G.E.	S.D.		
H.P.H.S.	84	6.4	1.17	9.0	1.83	2.6	.01
Annex	80	6.3	1.50	8.1	2.12	1.8	.01

1. Interpretation. Data reported in Tables 1 and 2 raise a number of interesting questions; these, and some implicit suggestions for program modification can be cited as follows:

   a. While a vast majority of the MAT scores showed statistically significant mean gains over the course of the one year program, levels of instructional change, and particularly at the Middle School levels, seemed less than might normally have been expected. For example, a description of the HH 100 program would lead one to believe that month for month gains could be expected. Only at the high school levels did this happen. In consequence, some refinement of the measurement criterion may well be in order so as to include an educational as well as a statistical index of change. That these may vary from grade level to grade level should be considered.

   b. It should be noted that there were also wide variances in the gain patterns reported at the various high schools. Weaver High School, it appeared that many of the youngsters had scored at the bottom of

only the MAT Arithmetic Computation and Problem Solving subtest were utilized. Here, with the exception of the Problem Solving scores for the two Fox Middle School teams, all gains exceeded the specified level of change being statistically significant at the .01 level. Change scores are reported by team in the following table.

TABLE 3

COMPARISON OF MEAN METROPOLITAN ARITHMETIC GRADE EQUIVALENTS, 1971-1972

Team & Subtest	N	Fall Mean G.E.	Fall S.D.	Spring Mean G.E.	Spring S.D.	Dif.	Signif.
Fox 1							
Arith.Comp.	86	5.5	.77	5.8	.80	.3	.01
Problem Solving	87	4.9	.75	4.9	.83	-	
Fox 2							
Arith.Comp.	82	5.5	.95	5.8	1.14	.3	.01
Problem Solving	81	5.2	1.26	5.3	1.32	.1	
H.P.H.S.							
Arith.Comp.	74	6.4	.91	7.2	1.08	.8	.01
Problem Solving	68	6.3	1.11	7.1	1.25	.8	.01
H.P.H.S.Annex							
Arith.Comp.	81	5.8	.98	7.1	1.22	1.3	.01
Problem Solving	81	5.8	1.25	6.9	1.20	1.1	.01
W.H.S.							
Arith.Comp.	73	3.1	.48	6.5	.95	3.4	.01
Problem Solving	73	3.0	.31	6.7	1.05	3.7	.01

Interpretation. The interpretive comments regarding the specified criteria used with the MAT reading scores are equally applicable to the assessment of mathematics differences. Note here that while criteria were exceeded, acceptable levels of gains were reported at the high school levels while changes at Fox were minimal at best.

3. Objective. After having spent one year in HH 100 with its special emphasis on the mastery of language skills that learners will achieve a statistically significant gain in writing skill ability measured at the .05 level.

Criterion. This objective will be measured by the group comparison of SRA Writing Skill Test scores administered in September and May of the school year.

Findings. Here there were various gaps in the data. Only Higher Horizons teams at HPHS and at the HPHS Annex used the SRA Writing Skills Test to measure the stated objective. From the other teams, no information was reported. Comparison of test data for HPHS and Annex teams are shown in Table 4.

TABLE 4

COMPARISON OF MEAN WRITING PERCENTILES,
1971-1972

Team	N	Fall Mean %ile	Fall S.D.	Spring Mean %ile	Spring S.D.	Dif.	Signif.
HPHS	76	25.8	18.7	75.0	16.0	+49.2	.01
Annex	80	18.8	19.4	23.6	19.9	+ 1.1	-

Findings. Only HPHS achieved the criterion specified in the objective. Note that for the Annex, gains were minimal; at HPHS test differences were extremely high to an extent which was highly unusual and at variance with even the most salutary past records of performance.

4. Objective. After having spent one year in HH 100 with concentrated emphasis on personal adjustment and academic improvement the learner should achieve a more realistic self-image toward school and society.

Criterion. A pupil self-rating scale will be constructed by the evaluation office and will be administered to students at the end of the school year. In addition, and if time permits, the scale will also be administered to an appropriate control population, and to a sample of HH 100 graduates at the succeeding grade level to ascertain if behavioral gains are being carried into successive years of high school.

Findings. Once again, the data submitted were incomplete. Only HPHS and HPHS Annex used the Program Rating Form which was developed as the objective criterion; from the other teams no information was reported.

HPHS also utilized a Pupil Self-Rating Scale as an additional measure of objective attainment; an instrument which allowed youngsters to examine the program on a "as I was" and "as I am now" basis for rating. Responses for each of the two instruments were tallied, converted to rounded percentages, and reported in Tables 5 through 9 which follow:

Table 6

PROGRAM RATING FORM

HPHS ANNEX

Directions

Read each question carefully. Answer each question carefully. Answer each question by checking the blank which best describes your reaction to the question. Check only one blank for each question.

It is not necessary to put your name on this paper.

	Much	Some	None	Some Adverse Effects	Cannot Judge	N
Do you think Higher Horizons has helped you so far this year to:						
1. Improve your reading ability?	43	44	3	1	9	81
2. Improve your study habits?	50	38	10		1	78
3. Improve your attitude toward learning?	43	43	9	1	4	81
4. Improve your classroom behavior?	44	39	11	5	1	80
5. Improve your out-of-class behavior?	28	48	10	6	8	69
6. Improve your getting along with your teachers?	70	25	4		1	81
7. Learn more about yourself?	24	52	14		10	80
8. Get specific help with your school work.	41	40	12	2	5	81
9. Get help in working out your personal problems?	11	18	24		47	79
10. Work toward a high school diploma?	66	19	2	1	12	81
11. Look forward to an education training beyond high school?	50	25	5		20	84
12. Identify some talents and interests which are other than academic?	27	39	17		17	83
13. Expect to achieve at a higher level in school?	65	27	1	1	6	89
Do you think Higher Horizons has:						
14. Increased your parents' interest in your school?	30	38	15		17	80
15. Improved your parents' interest in your school work?	46	30	12	1	11	83

How would you rate yourself?	All the time	Most of the time	Only some times	Never	Cannot Judge	
16. I do my homework.	35	56	7	1	1	82
17. I do not disturb others in the class when they are working.	30	44	19	4	3	78

	All the time	Most of the time	Only some times	Never	Cannot Judge	N
18. I can easily explain my ideas to others.	17	40	17	17	9	82
19. I take part in class discussions.	34	38	26	2		81
20. I want to learn and to improve myself.	82	15	2		1	82
21. When I come to school I am ready for the lesson and the tests of the day.	30	49	16	4	1	82
22. I feel I am doing better in classwork.	44	42	7		7	82
23. I get along with the other students in my class.	68	26	5	1		82
24. I finish my work on time.	27	57	12		4	82
25. I have confidence in myself.	46	30	15	1	8	80
26. I do the very best I can.	48	38	10	3	1	79
27. I do my work without having to be told to do it.	53	30	13	3	1	83

Table 7

PROGRAM RATING FORM

HPHS

Directions

Read each question carefully. Answer each question carefully. Answer each question by checking the blank which best describes your reaction to the question. Check only one blank for each question.

It is not necessary to put your name on this paper.

	Much	Some	None	Some Adverse Effects	Cannot Judge	N
Do you think Higher Horizons has helped you so far this year to:						
1. Improve your reading ability?	34	48	1	1	16	77
2. Improve your study habits?	28	49	14	1	8	78
3. Improve your attitude toward learning?	37	44	14		5	78
4. Improve your classroom behavior?	26	40	18	1	15	78
5. Improve your out-of-class behavior?	18	35	33	3	11	76
6. Improve your getting along with your teachers?	46	33	12	1	8	78
7. Learn more about yourself?	37	35	17	4	7	76
8. Get specific help with your school work.	25	51	14		10	77
9. Get help in working out your personal problems?	22	27	44		8	78
10. Work toward a high school diploma?	55	26	6		13	77
11. Look forward to an education training beyond high school?	55	26	9		10	78
12. Identify some talents and interests which are other than academic?	30	43	17		10	77
13. Expect to achieve at a higher level in school?	51	35	4		10	72
Do you think Higher Horizons has:						
14. Increased your parents' interest in your school?	34	36	23	1	16	68
15. Improved your parents' interest in your school work?	41	29	17	1	12	77

How would you rate yourself?	All the time	Most of the time	Only some times	Never	Cannot Judge	
16. I do my homework.	24	45	26	3	3	78
17. I do not disturb others in the class when they are working.		21	40	6	12	78

	All the time	Most of the time	Only some times	Never	Cannot Judge	N
18. I can easily explain my ideas to others.	23	42	27	5	3	77
19. I take part in class discussions.	20	36	33	10	1	77
20. I want to learn and to improve myself.	53	32	8	3	4	75
21. When I come to school I am ready for the lesson and the tests of the day.	25	37	22	15	1	78
22. I feel I am doing better in classwork.	37	39	17	1	7	78
23. I get along with the other students in my class.	64	27	4	4	1	77
24. I finish my work on time.	19	45	31	3	3	78
25. I have confidence in myself.	46	35	13	4	3	78
26. I do the very best I can.	49	32	15	5		75
27. I do my work without having to be told to do it.	22	30	34	13	1	77

Table 8

FINAL RATING FORM

BHS-Control

Directions

Read each question carefully. Answer each question carefully. Answer each question by checking the blank which best describes your reaction to the question. Check only one blank for each question.

It is not necessary to put your name on this paper.

	Much	Some	None	Some Adverse Effects	Cannot Judge	N
Do you think Higher Horizons has helped you so far this year to:						
1. Improve your reading ability?	17	71			12	42
2. Improve your study habits?	10	50	24	2	14	42
3. Improve your attitude toward learning?	24	62	14			42
4. Improve your classroom behavior?	26	52	16	2	2	42
5. Improve your out-of-class behavior?	19	33	38		10	42
6. Improve your getting along with your teachers?	29	47	17		7	41
7. Learn more about yourself?	42	24	24		10	41
8. Get specific help with your school work.	10	49	31		10	39
9. Get help in working out your personal problems?	19	24	50		7	42
10. Work toward a high school diploma?	59	29	2		10	41
11. Look forward to an education training beyond high school?	34	32	22		12	41
12. Identify some talents and interests which are other than academic?	19	42	22		17	41
13. Expect to achieve at a higher level in school?	24	52	7		17	42
Do you think Higher Horizons has:						
14. Increased your parents' interest in your school?	33	43	14		10	42
15. Improved your parents' interest in your school work?	25	50	7		18	40

How would you rate yourself?	All the time	Most of the time	Only some times	Never	Cannot Judge	
16. I do my homework.	36	33	19	12		42
17. I do not disturb others in the class when they are working.	29	40	22	7	2	41

	All the time	Most of the time	Only some times	Never	Cannot Judge	N
18. I can easily explain my ideas to others.	17	40	36	7		42
19. I take part in class discussions.	24	39	20	17		41
20. I want to learn and to improve myself.	57	31	10		2	42
21. When I come to school I am ready for the lesson and the tests of the day.	19	46	19	14	2	42
22. I feel I am doing better in classwork.	29	52	12	5	2	41
23. I get along with the other students in my class.	55	38	7			42
24. I finish my work on time.	19	65	2	14		42
25. I have confidence in myself.	58	38	2		2	42
26. I do the very best I can.	45	48	7			42
27. I do my work without having to be told to do it.	29	52	5	12	2	42

Table 9

PUPIL SELF-RATING SCALE

HPHS

Beginning of Year THEN						ITEM	End of the Year NOW					
Lowest		Middle		Highest			Lowest		Middle		Highest	
1	2	3	4	5	N		1	2	3	4	5	N
3	9	29	25	34	56	1. Doing homework	5	9	29	34	23	56
6	12	40	30	12	56	2 Being sure of myself, having confidence.	2	11	27	35	25	56
7	9	32	13	39	56	3. Being happy at school.	6	7	23	18	46	56
2	9	23	30	36	56	4. Respecting the rights of others in the class	3	2	18	38	39	56
	2	18	14	66	56	5. Making friends in my class.			6	23	71	56
9	22	35	21	13	54	6. Taking part in class committee projects	11	15	22	32	20	54
4	5	20	21	50	56	7. Wanting to learn.	2	6	12	30	50	56
13	14	23	37	13	56	8. Studying for class tests	9	9	27	41	14	56
2	12	20	36	30	56	9 Doing class work when told.		6	22	36	36	55
	14	27	38	21	56	10 Doing better in class wor	5	7	16	45	27	56
2	2	14	21	61	56	11 Getting along with my teachers.	2	2	13	19	64	56
		11	28	61	56	12 Getting along with the others in my class.			5	31	64	56
11	5	27	42	15	55	13. Helping other pupils in the class.	5	5	20	39	31	55
2	20	36	23	19	56	14. Offering to do things in the class.	4	13	28	32	23	56
2	5	16	25	52	56	15. Trying to do the best I can	2	5	13	30	50	56
2	12	18	45	23	56	16. Finishing a job.	7	5	15	43	30	56
3.2	7.9	18.9	26.5	43.5			3.9	6.4	18.5	32.9	38.3	

a. An examination of the Program Rating Form responses submitted from HPHS and from the Annex, and reported in Tables 6 & 7, produced a number of similarities. On the Forms, the vast majority of HH 100 students from both teams reported that Higher Horizons had apparently helped them on each of the rated items. On the personal attributes which were queried, however, there were some obvious differences. For example:

1) 7% of the Annex students reported that they did their homework only sometimes, as opposed to some 26% at HPHS who reported in the same category.

2) 19% of the Annex students reported that sometimes they disturbed others in the class when they were working; 40% reported similarly at HPHS.

3) At the Annex, 20% of the students reported that they were ready for their lessons and tests in the "sometimes" or "never" categories, while at HPHS the same categories were reported by 37%.

4) 7% of the Annex students reported that only sometimes did they feel that they were doing better in classwork as opposed to 17% at HPHS.

5) 16% of the Annex students reported that they "sometimes" or "never" did their homework without being told to do it; 47% reported similarly at HPHS.

b. Because, the Program Rating Form referred to the HH 100 program, the instrument was slightly modified so that it could be administered to the control group at Bulkeley High School. While not shown in Table 8, questions were phrased to reflect the effects of the freshman year, rather than the HH 100 programs, on the youngsters. On the basis of some 42 responses, a number of tentative observations could be reported:

1) In general, BHS control youngsters reported that their freshman year had helped them on most of the rated variables, and in a pattern which was similar to that submitted by the two HPHS teams.

2) Conversely, percentages reported on the personal attributes items were somewhat dissimilar. If anything, here the ratings seemed a little more positive than those produced by the teams. Since no effort was made to judge rater validity, the interpretation of these patterns can best be accomplished at the school, rather than program, level.

c. At HPHS 56 students also responded to a Pupil Self-Rating Scale. This instrument, which had been designed for use with previous HH 100 programs, allowed each student to rate himself on a "then" and "now" basis, albeit only at the end of the year. On the basis of these ratings, and while specific items showed differences, no overall trend was apparent.

5. Objective, Giving experience of varied activities and learning situations the learner should achieve a better attendance record.

Criterion, A percent of attendance will be calculated and will be used to compare HH 100 attendance figures with:

a. Previous grade cumulative attendance records for the group.

b. Overall grade attendance figures at the host school at the end of the school year.

A minimum 10% increase is expected.

Findings, In accordance to the stated criterion, end-of-year absences were collected and used to conpute a percentage of attendance which could be compared with school percentages. No data regarding past attendance records for any of the Higher Horizons groups were reported. Team percentages of attendance, school percentages of attendance, and differences are reported as follow:

Team	% of Attendance	School % of Attendance	Difference
Fox 1	93.33	85.91	+ 9%
Fox 2	92.00	85.91	+ 7%
HPHS	91.05	83.42	+ 9%
HPHS Annex	93.21	88.57	+ 5%
Weaver	94.38	74.51	+26%

Interpretation, On the basis of the figures which were submitted, all teams increased their attendance figures over those reported for their

schools as a whole. Here, all differences were apparently salutary when they compared with school percentages as a whole. Note that while only WHS attendance figures exceeded the anticipated 10% increase over school attendance figures, the fact that all were relatively high raises a question of the possible need to adjust this criterion level.

6. Objective - WHS. After having spent one year in Higher Horizons Introductory Physical Science, the learners will show a statistically significant gain in their ability to use scientific inquiry methods, problem solving techniques and concepts relative to physical science.

   Criterion. Gains will be measured by the Introductory Physical Science Achievement Test, form C, administered in September and May of the school year.

   Findings. Because of staff changes in the team structure, the IPS was not give.

7. While the stated objectives did not provide for criteria comparisons of team efforts, discussions with team leaders and administration indicated that these kinds of additional analyses were needed. Because the only test data which were collected from all the teams were MAT scores, these were compared pre and post-by team using a one way analysis of variance. This analysis was completed in two phases; for the Fox Middle School teams which were operated at the same grade levels, and for the high school teams as a unit. For this later analysis, similar MAT data were also collected from a control group which had been established at

Bulkeley High School using overall program criteria. Bulkeley High School control data and summary analyses of the findings are reported in Table 10, and as follows. Specific pre-post MAT changes are reported in Tables 1 and 3.

TABLE 10

COMPARISON OF CONTROL METROPOLITAN MEAN GRADE EQUIVALENT SCORES, 1971-1972

Subtest	N	Fall Mean G.E.	Fall S.D.	Spring Mean G.E.	Spring S.D.	Dif.	Signif.
Word Knowledge	40	6.1		6.6	1.50	.5	.01
Reading	40	5.8		6.2	1.50	.4	
Arith, Comp.	37	6.5		6.8	1.02	,3	.05
Problem Solving	37	6.3		6.8	1.25	.5	.01

a. When Fox teams 1 and 2 were compared of the MAT variables of Word Discrimination, Reading, Arithmetic Computation, and Problem Solving no statistical differences were evident. Here, gain patterns were generally the same.

b. At the high school level, a number of highly significant differences on the Word Knowledge variable could be reported.

HPHS exceeded gains reported for the HPHS Annex

WHS exceeded gains reported by HPHS, and by the Annex

WHS was the only team which significantly exceeded BHS control gains.

c. On the variable of Reading, significant differences between teams were reported as follows:

HPHS Annex gains exceeded those reported for HPHS

WHS gains exceeded those reported for HPHS, the Annex, and BHS.

HPHS Annex gains exceeded those reported by BHS.

d. In Arithmetic Computation, significant differences were reported between each of the teams at the high school level. Here a comparison of Tables 3 and 8 reveal the direction of the differences.

e. In similar fashion on the MAT Problem Solving variable significant differences were reported between:

HPHS and WHS, with differences favoring WHS.

HPHS Annex, WHS, and BHS. Again differences favored WHS.

WHS and BHS, with differences favoring WHS.

Summary and Conclusions. During its seventh full year of operations, the Higher Horizons program continued to bare out the stated contention that compensatory education could be effective at the secondary school instructional level. To demonstrate this effectiveness several specified objectives, together with measurement criteria and standards, were specified and used in the conduct of an evaluation. While these objectives, findings and interpretations have already been reported, a number of overall recommendations are in order.

1. Because the original HPHS program was proven to be so salutary, HH 100 was expanded so as to encompass two high schools and

two middle schools of Hartford. Despite this extensive expansion, there is no singular coordination of the program; it is instead another function shared by two directors in the instructional office. Consequently testing, the specification of objectives, and deviations from these, are generally left to individual team discretions. This lack of line coordination has resulted in missing test data, incomplete statistics, and the format of the overall evaluation being somewhat less than could be desired. For example, while there may have been good and sufficient reasons for deviating from a specified objective, reasons were not reported; hence no judgement can be made as to whether the changes were or were not appropriate. To remedy this situation, the assignment of one team leader to coordinate specific common program areas is suggested. With such a point of contact, it would then be possible to more definitively assess the effects of Higher Horizon as a program as it goes into its eighth operational year.

2. As has been already indicated, the specified measurement criterion of a .05 statistical level of significance was not fully appropriate to the assessment of objectives in the program. Consequently, and while involved t-tests will continue to be utilized to determine differences within and between the various teams involved in the program, an academic achievement level should be specified as being month for month gains on the various measured indicators. While this gain level is not specifically cited in the project narrative,

one can logically presume that if the program is to bring youngsters with latient potential to an average or above level of attainment, that this standard would be an acceptable measure of program growth.

3. Similarly, the criterion for attendance improvement should be re-specified. It is recommended that 7% or better attendance improvement at the high school level and at the middle schools is acceptable, with the exception that a level comparable to that shown by the other high school teams should also apply to Weaver. While it would be desirous to compare student attendance patterns with those which were attained in the past, one must recognize that without centralized coordination this data gathering continues to be impractical. Hence, this comparison should serve only as a alternate criterion to the primary benchmark specified in the proposal.

4. One further overriding consideration has still to be examined. This is the question as to whether Higher Horizons should be a program proper, or whether it should be made up of individual teams working under the aegis of their own principal or administration. In the former instance general behavioral objectives should be used as the benchmark for conducting evaluations; in the later, specific team-oriented objectives and instrumentation are indicated. While there is a point in between these two extremes which will probably be optimal from a program standpoint, this point should be specified

in advance of actual program operations. Here some administrative decisions are needed.

5. Finally, a recommendation regarding case load of guidance counselors is needed. In its original conception, HH 100 counselors were supposed to be assigned a team case load of approximately one hundred youngsters. While there was some thought given to having the counselor follow up subsequent classes, never was it anticipated that an HH 100 counselor would devote services to other than team functions. The fact that some counselors have been allocated case load of 160 to 180 youngsters, and particularly in new team settings where growing difficulties can be anticipated, seems to represent a possible error in placement. Thus, alignment of counselor services and their effects on the total program should be carefully considered.

APPENDIX

SADC-TITLE I PROGRAM EVALUATION FORMAT

FY 1972

1. Source and Amt. of Prgm. Funds:

Title I: $ 281,560

SADC: $ 5,085

_____: $_____
(Specify any other)

Date Submitted September 15, 1972

Town Hartford Proj.No. 64-1,2; Component 16

Program Director: John Shea & Dino Galiano

Program Evaluator: Robert J Nearine

Descriptive Title of the Program:

Higher Horizon's

2. Period of Program:
(x) School year only
( ) Summer only
( ) School year and summer

3. Name (s) of school(s) where program took place: H.P.H.S., H.P.H.S. Annex, W.H.S., Fox Middle School

4. Report the full time equivalent (f.t.e.) number of Title I - SADC supported staff who directly taught, tutored, or counseled pupils in the program. Where a staff member directed only one-quarter of the teaching day to program teaching-learning activities, show .25 as the number for that staff member. Also indicate the total program hours of direct teaching, tutoring, or counseling rendered weekly by this staff.

f.t.e. staff number		total teaching hours weekly	f.t.e. staff number		total teaching hours weekly
(21)	teacher	(30)	(4)	counselor	(30)
(3)	tutor or aide	(30)	( )	_____ (specify other)	( )

5. Report the duration in weeks of the direct services to pupils 36

6. Report the number of public school pupils directly served 399

7. Give the grade level breakdown for public school pupils below.

Pk	K	1	2	3	4	5	6	7	8	9	10	11	12	Other
								65*	45*	289				

8. List below the criteria used to select pupils for services of the program being evaluated (economic criteria and educational criteria)

* Does not include 57 seventh graders and 50 eighth graders served by a non project team.

9a. If children from eligible Title I attendance areas who attended non public schools met the criteria to receive services, and received services of the town's Title I ESEA program ... indicate the number of such children and the names of the non public schools from which they came.

9b. Describe the specific services non public school children received.

9c. If the Title I services for non public school children were different from the services provided for public school children, indicate the value of such services on a separate page and attach to this report.

10a. List the number of children and youth directly served by the project who were promoted to the next grade level at the end of school year 1971-72. 341

10b. List the number of children and youth directly served by the project who were not promoted to the next grade level at the end of school year 1971-72. 28

11a. Give the aggregate days of attendance for the school year of children and youth directly served by the project. 61,858

11b. Give the aggregate days of membership for the school year of children and youth directly served by the project. 66,797

12a. List the number of grade 7-12 youth served by the project who withdrew from school but were not transfer withdrawals, from July 1, 1971 to June 30, 1972. 5

12b. List the number of grade 7-12 youth served by the project who remained in school from July 1, 1971 to June 30, 1972.

(Subtract the number of grade 7-12 withdrawals from the total number of grade 7 through 12 public school youth served in the program which is indicated on page 1 of this report). 394

13. Report the standardized test results secured for children in the program in Table I on the last page (page 6).

Items 13 - 18 are reported in the narative.

HIGHER HORIZONS 1971-1972

-Addendum

Because some erroneously reported pretest data were used as the basis for computing pre and post test gains for one team, and differences between the three teams at the high school level, some corrections to the reported data are indicated. Specifically, errors were made when the pretest (Metropolitan Achievement Tests) were corrected last fall at Weaver High School. While these errors were detected and corrected, and because of personnel and staff assignment changes, the corrected scores were not transferred to the coding sheets which were used in the final analysis.

Specifically, the following Weaver High School Word Knowledge and Reading scores should be substituted in Table I for those which were reported. Note here that since the data were not subjected to computer analysis, no standard deviation nor test of significance is reported. At the same time it should be noted that the gains themselves were highly salutary and were in keeping both with the overall gain picture reported at the high school level, and with month-for-month gains which were used as a rule of thumb index of expected achievement.

Team & Subtest	N	Fall Mean G.E.	Fall S.D.	Spring Mean G.E.	Spring S.D.	Dif.	Signif.
W.H.S.							
Word Knowledge	84	6.5	-	7.8	-	1.4	-
Reading	84	6.0	-	6.8	-	.8	-

In a similar fashion, the MAT mathematical pretest gain scores which were reported in Table III should also be corrected. Here again, while no standard deviations nor tests of significance could be reported, gains in Problem Solving were particularly salutary; this despite the fact that the Arithmetic Computation changes were minimal. Typically when measuring these two math areas with the MAT, the Arithmetic Computational scores tend to be somewhat better. Since the Higher Horizons program was oriented around reading, this kind of gain was particularly notable, although quite atypical of usual testing patterns.

Team & Subtest	N	Fall Mean G.E.	Fall S.D.	Spring Mean G.E.	Spring S.D.	Dif.	Signf.
W. H. S.							
Arith. Comp.	84	6.3	-	6.5	-	.2	-
Problem Solving	84	5.9	-	6.7	-	.8	-

Any interpretations of the preceding test scores should be accompanied by several cautions and suggestions; specifically:

1. While this cannot be documented, visual comparisons indicate that in all probability MAT Word Knowledge, Reading, and Problem Solving gains reached at least the specified level of significance. That is to say, all of these gains were probably both statistically and educationally significant both on the basis of the statistical test which had been contemplated and on the month-to-month gain basis which was suggested as

being a more valid criterion of achievement.

2. Similarly, and based on past records of performance, the gains cited above were of a level which could be logically expected of a high school Higher Horizons program.

3. Conversely, comparisons between the various high school teams which involved MAT scores for Weaver High School (Page 39 to 40) should be discounted. Other test comparisons not involving Weaver High School continue to be valid in terms of a test of statistical significance. Note here that this test shows only that differences did occur between the various teams. It must be stressed that no attempt has been made to explain the reason for these differences, nor to indicate that one team was "better" than another. The collected data did not allow nor even imply any such conclusions.

Evaluation Office
9/72